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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,328	11/09/2000	Shigeru Mori	450100-02841	5072

20999 7590 03/24/2003

FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 03/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,328

Applicant(s)

MORI ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on *November 21, 2002* has been entered.
2. This Office Action is also in response to applicant's amendments filed on October 28 and November 21, 2002, which have been entered as paper numbers 11 and 14.
3. By these amendments, the applicant has amended claims 14, 16-18, 21, 23, 25-26 and has newly added claims 28-40.
4. Claims 14-40 remain pending in this application.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 14-34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

The specification fails to teach how could a hologram be formed by simply producing a synthetic image and generating a parallax image train from the synthetic image. Claims 16, 20, 22 and 24 inherit

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the rejection from their respective based claim. Synthesizing a synthetic image alone simply cannot form a hologram.

The specification also fails to how could a *three-dimensional image* be generated by a means, as claimed in claims 27, 28, 31, and 32. It is known in the art that there is no such thing as a three dimensional image. Three dimensional *illusion* however could be achieved by using special optics when viewing a pair of *two dimensional image* bearing parallax information but there is no such thing as a three dimensional image existed by itself.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 14-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The phrase “a three-dimensional image model” recited in claims 14, 17, 21, and 25, the phrase “three-dimensional model” recited in claims 18, 23 and 26 and the phrase “three-dimensional image data” recited in claims 28, 31, 32, 35, 37, 39 and 40 are indefinite since it is not clear what do they mean by these phrases. It is not clear if this “three-dimensional image model” or the “three dimensional image data” comprises a stereo *image pair* for a three-dimensional object or not. If this is the case, such should be *explicitly* recited. In general, all the images are of two-dimensional; there is no such thing as of “three-dimensional images”. However stereo image pair comprises images of different perspectives of an object is capable of rendering three-dimensional information of the object when viewed with special arrangement of optics. It is completely not clear what does it mean by “three-dimensional model”. Claims 15-16, 19-20, 22, 24, 29-30, 33-34, 36, and 38 inherit the rejection from their respective based claims.

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Claims 15, 19, 22, 24, 29, 33, 36 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the means for pasting the images, the means for producing parallax image train and the means for sequentially recording the hologram element *with an object beam* and a reference beam. To be more specific, the claims fail to provide the relationship between the *recording* beams and the parallax image train. It is not clear how could each image of the parallax image train be recorded as an element hologram by exposing the sensitive material by *an object beam* and a reference beam where the *object beam is arbitrary and has no connection what so ever with the parallax image*.

The phrase “by rendering ... image” recited in various claims is indefinite and confusing since it is not clear what function is considered here as “render” an image. The claims also fail to provide means for carrying out this “rendering” which makes the scopes of claims unclear.

The phrase “separate image” recited in various claims is confusing and indefinite since it is not clear what does it mean by “separate”. Does it mean separate physically in space or in what?

The phrase “the omitted portions of the three-dimensional image” recited in claim 27 is indefinite and confusing since it is not clear what is considered to be “omitted portions”. It is not clear how could an image having an omitted portion? How are these omitted portions achieved?

The claims as stand now contain **numerous confusions and indefiniteness**. The examiner can only point out a few. **It is applicant’s responsibility to clear our ALL of the discrepancies and to make the claims in comply with the requirements of 35 USC 112, first and second paragraphs.**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 14, 16, 17, 18, 20, 21, 23, 27, 28, 30, 31, 32, 34, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tabata (PN. 6,111,597) in view of the patent application of Yano et al.(US 2002/0113865).**

Tabata teaches a *stereo image forming apparatus* that is comprised of a *stereo image forming device* (1 or 4) having a micro-computer and a program recording medium for *pasting or inserting* a previously produced *background image data* (b, of Figures 36 or 38), serves as the separate image or the two-dimensional image, to a stereo image model (or pair) having left eye perspective image and right eye perspective image (a, of Figures 36 or 38) to produce or *synthesize* a train of *parallax* images (c, of Figures 36 and 38), (please see Figures 1, 2, 36 and 38, columns 4, 9, 10, 27 and 28).

Tabata teaches that the stereo image model is generated by projecting three-dimensional objects to the left and right visual points, (please see Figure 10). This reference does not teach explicitly that the three-dimensional objects are actual object or not. However the nature of the object does not change the operation of image forming apparatus as long as the stereo image model is provided. Furthermore, using stereo camera arrangement to obtain stereo image model from an actual three-dimensional object are standard practice in the art as demonstrated by the teachings of Yano et al, wherein a stereo camera (220, Figure 1 and 2) having two charge couple device (CCD) for taking right eye and right eye perspective of an actual object in order to create the stereo image model of the object is disclosed, (please see Figures 1 and 2). It would then have been obvious to apply the teachings of Yano et al to modify the stereo image

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forming apparatus of Tabata for the benefit of providing an alternative and more direct way of obtaining stereo image model of three-dimensional object.

This references have met all the limitations of the claims with the exception the they do not teach explicitly that the stereo image forming apparatus is comprised in a hologram forming apparatus or the image data is usable for forming a hologram. However these recitations of intended used in the preamble have not been given patentable weight because it has been held that a preamble is denied the effect of limitations where the claim is drawn to a structure and the portion of the claim following the preamble is a *self-contained description* of the structure *not depending* for the completeness upon the introductory clause. *Kropa y. Robie*, 88 USPQ 478 (CCPA 1951). In this case, the body of the claims is drawn to image data generation that does not rely on the feature of usable in hologram recording.

With regard to features concerning the “image generating means” and “image capturing means” for generating or capturing the background two-dimensional image, Tabata does not teach explicitly about the means to either capture or generate the background image data however such means must either be inherently included in the apparatus or an obvious modification to one skilled in the art since the two-dimensional background image must have been “generated” from certain means and to use certain image capturing means such as camera to obtain the background images is standard practice in the art, (such is demonstrated in the teachings of Yano et al), for the benefit of providing an actual means to prepare the background images.

Both Tabata and Yano et al references teach that the sequence of synthesized parallax images are formed by combining a sequence of stereo image pair with a sequence of background image, that is to say a “rendering” process is performed.

With regard to claim 27, the position of the background image being inserted into the stereo image pair is considered to be the “omitted portions”.

With regard to feature concerning “pasting” the background image to the stereo image model, Tabata teaches specifically that the background images are inserted and combined to the stereo image model, (please see column 27, lines 37-40), wherein the combining and inserting are done on computer. While inserting and combining implicitly including “pasting”, it is well known in the art that pasting file into another file on computer to combine files are very standard process in the computer art. Such feature is therefore implicitly included. Furthermore, Yano et al teaches that one image can be pasted to another image to create desired image combination effect, (please see columns 1, and 7).

6. Claims 15, 19, 22, 24, 25, 26, 29, 33, 36, 38, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tabata and Patent application of Yano et al as applied to claims 14, 18, 21, 23, 28, 32, 35 and 37 above, and further in view of the patent issued to Benton (PN. 4,834,476).

The stereo image forming apparatus taught by Tabata in combination of the teachings of Yano et al as described for claims 14, 18, 21, 23, 28, 32, 35 and 37 above have met all the limitations of the claims. These references however do not teach explicitly to use the parallax image train formed by the stereo image forming apparatus to record hologram elements. But using parallax images to sequentially record hologram elements to form holographic stereograms is quite well known in the art as demonstrated by the teachings of Benton. Benton teaches that a series of images having different perspective views are being projected to the recording medium (44) sequentially as the *object beam*, (please see Figures 1 and 9). The object beam is then interfered with a reference beam to record a hologram element sequentially at the recording medium. The holographic stereogram consists of the plurality of hologram elements. It would then have been obvious to one skilled in the art to combine the teachings of Tabata, Yano et al and Benton to use the stereo image forming apparatus of Tabata in combination of Yano et al to form the series or train of the parallax images having different perspective views of an object with added

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background image as the object information to modulate the object beam to record a holographic stereogram for the benefit of providing a more accurate way of creating the stereo images therefore providing an improvement to the quality of the recorded holographic stereograms.

Response to Arguments

1. Applicant's arguments filed on October 28, 2002 and November 21, 2002 have been fully considered but they are not persuasive.
2. The newly amended claims and newly submitted claims 28-40 have been fully considered and they are rejected for the reasons stated above.
3. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the "pasting" in terms of Figure 6) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

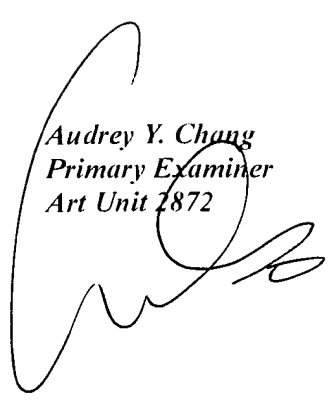
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A. Chang, Ph.D.
March 19, 2003

Audrey Y. Chang
Primary Examiner
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A large, stylized handwritten signature in black ink, which appears to be 'Audrey Y. Chang', is written over the typed name and title.